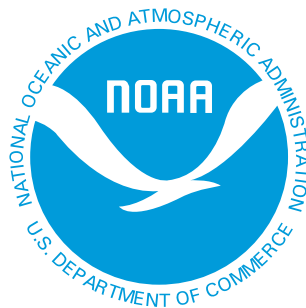


U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration

# Strategic Plan

*A Vision for 2005*

## EXECUTIVE SUMMARY



September 1998



# **NOAA Strategic Plan**

## **A Vision for 2005**

### **EXECUTIVE SUMMARY**

*September 1998*

Revised from March 1995 Edition

**US. DEPARTMENT OF COMMERCE**  
**William M. Daley, Secretary**

**National Oceanic and Atmospheric Administration**  
**D. James Baker, Under Secretary for Oceans and Atmosphere**  
**and Administrator**

## Foreword from the Administrator

The Department of Commerce promotes job creation, economic growth, sustainable development, and improved living standards for all Americans, by working in partnership with business, universities, communities, and workers. The Department's goals are to: build for the future and promote U.S. competitiveness in the global marketplace, by strengthening and safeguarding the nation's economic infrastructure; keep America competitive with cutting-edge science and technology and an unrivaled information base; and, provide effective management and stewardship of our nation's resources and assets to ensure sustainable economic opportunities. As a bureau within the Department, NOAA is an integral part of achieving this mission.

NOAA's plan for the future is a handbook for sustainable development. Economic growth, maintaining a quality environment, and wise use of resources must go hand in hand to assure a rising standard of living for all Americans. The health of the economy depends on the health of the environment. NOAA promotes sustainable development by:

- ☐ Protecting life and property.
- ☐ Providing the environmental information needed by policy makers for decisions.
- ☐ Integrating environmental stewardship and economic development.
- ☐ Redefining the relationship among the Federal government, state and local governments and stakeholders.
- ☐ Reinventing the way government does business.

The steps necessary to implement our vision are outlined in this Executive Summary to NOAA's Strategic Plan for 1995–2005. The Strategic Plan was developed by teams comprised of representatives from throughout the agency. It builds upon previous efforts which produced our seven strategic goals, and incorporates extensive internal and external input, review and comment from our employees, customers and stakeholders. The vision of this Strategic Plan is woven closely with those responsible for its development and implementation. I find this quote appropriate: "Where there is no vision, the people perish" (Proverbs 29:18). I believe this is true in NOAA. Likewise, the counter also stands — without our people, NOAA's vision will perish. With my commitment to this Strategic Plan, NOAA is also committed to providing a positive workplace supportive of its diversity and equal opportunity goals.

Since 1995, the Strategic Plan has been updated three times, in response to emerging issues and developing programs. As the Strategic Plan has matured, improved performance measures have been incorporated. I am proud to present this Executive Summary, and would like to congratulate the women and men of NOAA, and our academic and industry partners, who have made the Strategic Plan a working reality. I encourage your comments on the plan and your participation in NOAA's exciting future.



D. James Baker

# NOAA Strategic Plan

## A Vision for 2005

### Vision

*For the year 2005,  
NOAA envisions a world  
in which societal and  
economic decisions are  
coupled strongly with a  
comprehensive  
understanding of the  
environment.*

The National Oceanic and Atmospheric Administration's mission is to describe and predict changes in the Earth's environment, and conserve and manage wisely the Nation's coastal and marine resources to ensure sustainable economic opportunities. Through strategic planning, NOAA evaluates how best to accomplish this mission. The strategic plan provides a framework for articulating program goals and reaching them through consensus. The planning process promotes synergy, innovation and efficiency. It represents a better way of doing business.

NOAA envisions a 21st century in which environmental stewardship, assessment, and prediction serve as keystones to enhancing economic prosperity and quality of life, better protecting lives and property, and strengthening the U.S. balance of trade. This vision depends on actions now that:

- ☐ Create and disseminate reliable assessments and predictions of weather, climate, space environment, ocean and living marine resources, and nautical and geodetic phenomena.
- ☐ Implement integrated approaches to environmental management and ocean and coastal resources development for economic and social health.
- ☐ Ensure continuous operational observing capabilities — including buoys, satellites, ships, submersibles and radars.
- ☐ Build and use new information networks including investing in state-of-the-art computing capabilities.
- ☐ Develop public-private, interagency and international partnerships for the expansion, transfer, and archiving of environmental knowledge and technologies.
- ☐ Invest in scientific research and the development of new technologies to improve current operations and prepare for the future.
- ☐ Improve NOAA's abilities to serve its customers and forge stronger ties with its partners and stakeholders.

# The Challenge to NOAA

NOAA works as an integral part of the Department of Commerce to further the Nation's capabilities for sustainable development by addressing environmental challenges. As Secretary Daley states, "The President and Vice President — all members of this Administration — strongly believe that environmental commitments can complement economic objectives. Through far-reaching dialogue, healthy debate, and public-private partnerships, we can find responsible, cost-effective ways to foster family and community friendly growth".<sup>1</sup> Embracing this linkage between economic and environmental goals has been a guiding principle for NOAA.

NOAA's historical role has been to predict environmental changes, protect life and property, provide decision makers with reliable scientific information, manage the nation's living marine resources, and foster global environmental stewardship. Our goals and programs today reflect a commitment to these basic responsibilities in the service of our customers and the Nation.

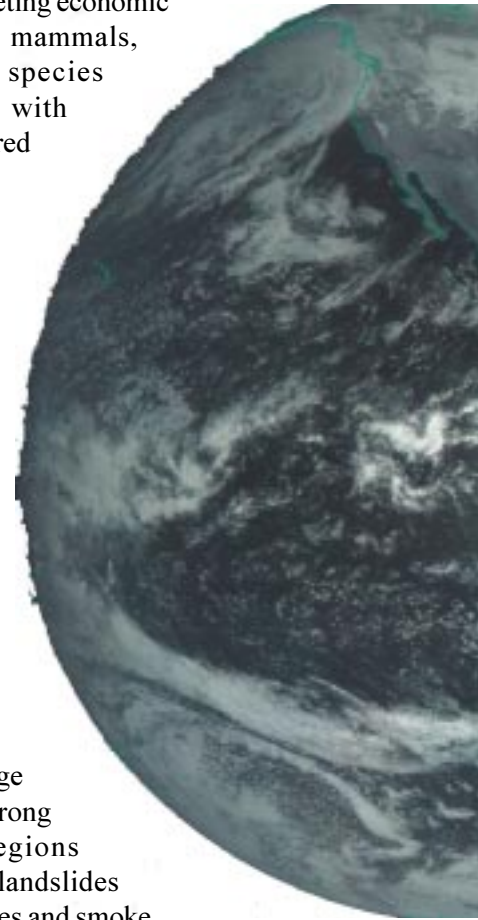
Over the past 25 years, technology and scientific insights have allowed the U.S. to make important strides in understanding and predicting the behavior of natural systems, in managing resources more effectively, and in improving environmental quality. NOAA's sciences and services have been fundamental to these accomplishments. Although we are better prepared to address the environmental challenges of the 21st century, we must recognize the unrelenting and increasingly complex nature of these challenges. For instance:

□ Our dynamic natural surroundings affect life, property and human actions on a daily basis. Short-term environmental events, particularly severe weather, can be socially and economically devastating. The ability to prepare for emergencies and to extend mitigation efforts depends on the quality and timeliness of our observations, assessments, and information delivery. The challenge is to improve our understanding of the environment to minimize its effects on human activities. Population growth and economic development are driving the need for a comprehensive system of environmental


observations, assessments, predictions and information delivery. The Department of Commerce's Natural Disaster Reduction Initiative is an end-to-end strategy to reduce and mitigate the impacts of extreme natural events. NOAA plays an essential role in this effort.

□ Many marine species are under stress from a combination of habitat degradation, overexploitation and competing economic concerns. Some marine mammals, turtles, fish, and other species currently are threatened with extinction. These endangered species are critical to the maintenance of biodiversity and the stability of natural ecosystems. The challenge is to return our living marine resources to healthy population levels to enhance opportunities for future generations.

□ Dramatic seasonal to interannual climate variations in the U.S. have been linked to the El Niño-Southern Oscillation (ENSO) phenomenon in the tropical Pacific. Global ENSO-related effects range from severe drought to strong storms, with some regions experiencing floods and landslides while others suffer from fires and smoke. Offshore fishing is also affected by the change of ocean temperatures resulting from ENSO. NOAA issues seasonal outlooks of climate variability based on ENSO research, and successfully forecasted the 1997–1998 El Niño six months in advance. However, the ability to improve the accuracy and reliability of multi-season forecasts requires enhanced modeling and incorporation of the impacts of other types of climate variability, such



as decadal variability found in the North Atlantic Oscillation and the Pacific Decadal Oscillation. The impact of global change on decadal and seasonal changes must be studied, requiring enhanced process understanding and an expanded observing system.

 ☐ Human activities and natural climatic change in the global environment may alter the capacity of the Earth to sustain life within the next century and beyond. Atmospheric pollution and the thinning of the ozone layer are two examples of human-induced changes for which governments have responded strongly through such measures as the Clean Air Act and the Montreal Protocol. Another emerging climatic trend distinguished by its projected global consequences is global warming. State of the art climate models suggest global temperatures could rise by 3.5 degrees Fahrenheit over the next century and significantly impact agricultural productivity, water supply, drought conditions, sea level, and other areas. The challenge to NOAA in understanding air quality, stratospheric ozone, and climate variability is to offer highly credible and objective linkages between theory, observations, and climate forecasts for policy makers and citizens so they may be in a position to adopt the most appropriate and informed responses.

☐ The National Ocean Conference, held in June, 1998, highlighted the critical contributions oceans and coasts

make to our economy. U.S. coastal counties are growing in population at a faster rate than inland counties. Coastal areas provide essential habitats for over 75% of U.S. commercial fisheries landings,<sup>2</sup> and serve as the foundation for billions of dollars in economic activity, including maritime commerce. In fact, 98% of our international trade by bulk leaves our shores through coastal ports. Unfortunately, rapid population growth, development, and pollution in coastal areas have degraded coastal resources and economic productivity. For instance, water pollution has repeatedly closed large portions of the Nation's shellfish beds. In 1997, beaches were closed or advisories issued against swimming on over 4,000 occasions because of coastal pollution.<sup>3</sup> Changing the chemistry of our coastal oceans has other costly impacts. 51% of the Nation's estuaries exhibit hypoxic conditions each year and 30% have become anoxic. A hypoxic "dead zone" the size of New Jersey now exists in the Gulf of Mexico due in part to the over-abundance of nutrients and other pollutants entering Gulf waters via the Mississippi River. Harmful algal blooms increasing in frequency and duration, may be responsible for more than \$1 billion in losses in the last two decades through direct impacts on coastal resources and communities. The introduction and spread of alien invasive species continues to impact coastal communities and economies. Utilization of positioning technologies and information has not kept pace with an expanding volume of maritime traffic, leading to reduced efficiency and increased risk of accidents. The challenge is to enable sustainable development in the coastal zone by maintaining healthy ecosystems, balancing resource use and protection, and providing the information and technologies needed to support economic growth.

NOAA will continue to strengthen the linkage between its economic and environmental goals. Such a bond is critical to preserve national and economic security in a constantly changing world. NOAA's planning and mission evaluation efforts help define the goals and programs necessary to address these challenges.

# Achieving NOAA's Vision for 2005

NOAA's Strategic Plan for 1995–2005 describes the goals and objectives that have been established to fulfill its vision. The strategy consists of seven interrelated goals. Each goal is a coherent unit, but there also are important crosscutting relationships which enable the implementation and advancement of national, Department of Commerce, and NOAA objectives. The goals are grouped within the two primary missions of *Environmental Assessment and Prediction* and *Environmental Stewardship*.

## Environmental Assessment and Prediction Mission

- ☐ Advance Short-Term Warning and Forecast Services
- ☐ Implement Seasonal to Interannual Climate Forecasts
- ☐ Predict and Assess Decadal to Centennial Change
- ☐ Promote Safe Navigation

## Environmental Stewardship Mission

- ☐ Build Sustainable Fisheries
- ☐ Recover Protected Species
- ☐ Sustain Healthy Coasts

The execution of NOAA's goal-based strategy depends strongly on a stable infrastructure and administrative and human resources, as well as on the underlying capabilities of the agency as a national resource for research, observing systems, and environmental data and information services. Teams, comprised of representatives from all parts of NOAA, develop the goals, objectives, and plans. NOAA's line offices implement the plans and conduct the work needed to achieve these goals, as shown in Appendix I and II.

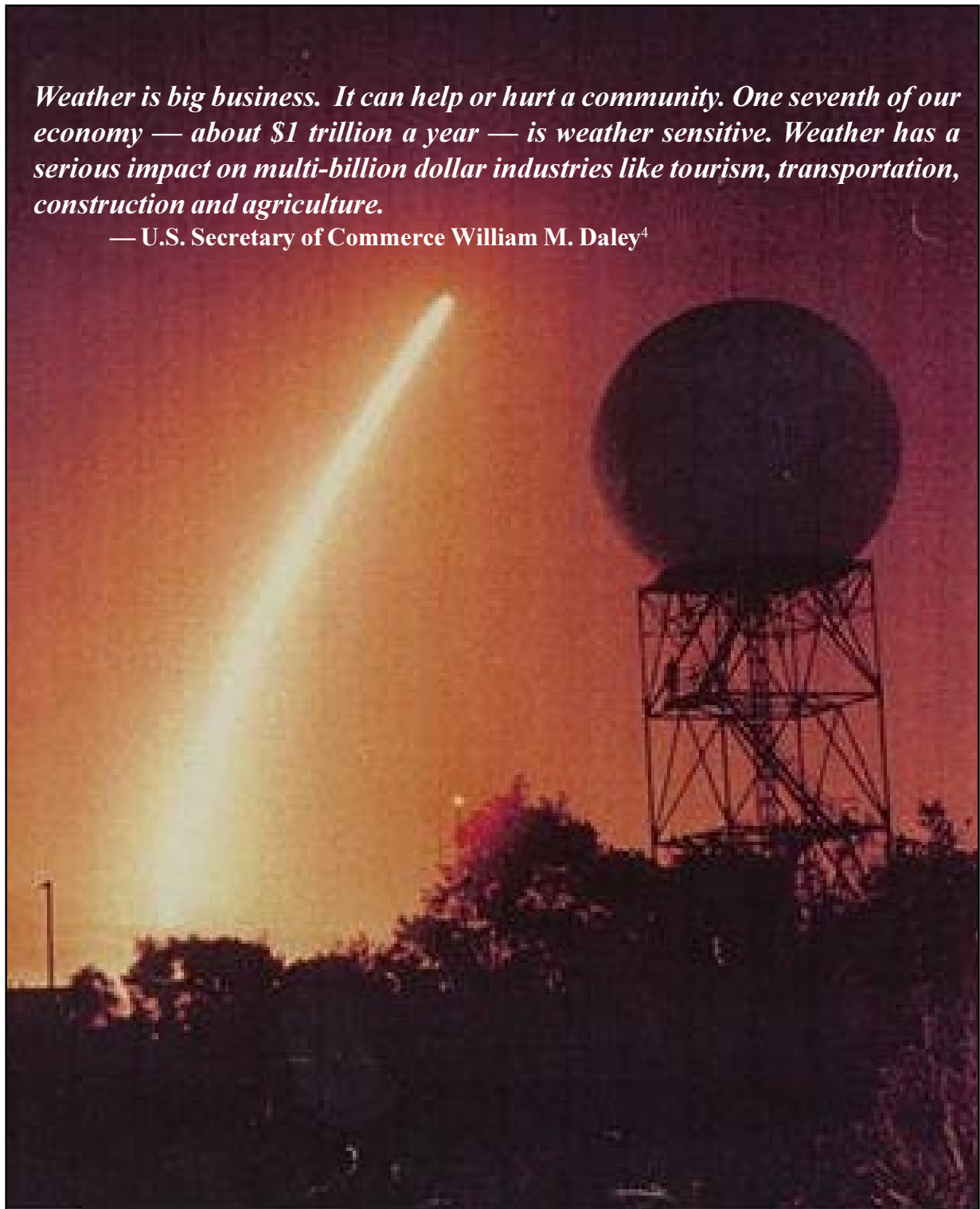
Each mission, the seven strategic goals, and NOAA's national capabilities are summarized in the following pages.



# Environmental Assessment and Prediction Mission

*Weather is big business. It can help or hurt a community. One seventh of our economy — about \$1 trillion a year — is weather sensitive. Weather has a serious impact on multi-billion dollar industries like tourism, transportation, construction and agriculture.*

— U.S. Secretary of Commerce William M. Daley<sup>4</sup>



NEXRAD radar adjacent to 1994 GOES launch. Credit Steve Hodanish, NWS, Melbourne, FL.



## Advance Short-Term Warning and Forecast Services

**Vision.** NOAA's vision for 2005 is to provide significantly improved short-term warning and forecast products and services that enhance public safety and the economic productivity of the Nation. NOAA will enhance its ability to observe, understand, and model the environment, and effectively disseminate products and services to users.

**Challenge.** Our environment has profound effects on human welfare and economic well being. Each year, hundreds of lives and billions of dollars are lost due to severe storms, floods and other natural events that can be predicted minutes to months in advance. NOAA's current ability to predict short-term change is restricted by observations that are incomplete in time and space. This limits the ability to improve basic understanding and predictive modeling of weather and other natural phenomena. NOAA is committed to improving its observing systems, developing a better understanding of natural processes, and enhancing its predictive models and dissemination systems.

**Implementation Strategy.** The objectives are:

- ☐ Sustain modernized weather service operations.
- ☐ Maintain continuous operational satellite coverage critical for warnings and forecasts.
- ☐ Strengthen observing and prediction systems through scientific, technological and programmatic advances, and international cooperation. This objective will be achieved by incorporating the scientific and technologic advances of the U.S. Weather Research Program Advanced Hydrologic Prediction System, Space Weather, and Upper Air Observing System into service improvements.

- ☐ Improve customer service to the public, emergency managers, the media, and private forecast planners through effective communication and utilization of NOAA's products.

**Benefits.** Increasing our understanding of the environment through research and investing in new technologies will provide more accurate and timely weather warnings and forecasts required by the Nation. Improved forecasts will support management of water resources, and help avoid flood damage. Extended forecasts of solar and geomagnetic disturbances will increase efficiencies for space operations, and power generation and satellite communications networks. Advanced modeling techniques and more complete observations will reduce uncertainties in hurricane track prediction, saving millions of dollars by avoiding unnecessary evacuation costs. Accurate outlooks

of future conditions will provide better information for planning weather sensitive activities over land and ocean. Critical contributions to the Administration's Natural Disaster Reduction Initiative will be provided from the research, monitoring and operational program in this NOAA goal.

Improvements associated with the modernized weather services has allowed for huge dividends. A cost-benefit analysis by the National Institute of Standards and Technology estimated economic benefits to the Nation to be about eight times greater than the costs involved. The Nation

should realize annual benefits approaching \$7 billion from the modernization.<sup>5</sup>





# Implement Seasonal to Interannual Climate Forecasts

**Vision.** NOAA, working with academic and multinational partners, will provide one-year lead-time forecasts of known skill of global climate variability, especially El Niño and the consequent precipitation and surface temperature distributions. These forecasts will increase society's ability to mitigate economic losses and social disruption.



**Challenge.** The largest interannual climate signal that has a degree of predictability is caused by the El Niño-Southern Oscillation (ENSO) phenomenon in the Pacific Ocean. Temperature and precipitation patterns, changes in ocean circulation, and changes in storm frequency caused by ENSO have global effects on economies and planning. Based on the application of ENSO-related research, NOAA has begun issuing monthly and seasonal probability outlooks for temperature and rainfall for up to a year in advance. The challenge is to introduce an operational program for the systematic production and application of regionally-tailored climate forecasts. Planned actions represent an end-to-end integrated approach to establishing such a system, including the multinational infrastructure needed to generate and transfer useful climate information and forecasts.

**Implementation Strategy.** The objectives are:

- ☐ Implement climate prediction systems to deliver useful seasonal to interannual climate forecasts for the U.S. and collaborate in a multinational effort to generate and use similar forecasts.
- ☐ Enhance global observing and data systems required to provide data for the initialization and validation of model predictions of seasonal to interannual climate variations.
- ☐ Invest in process and modeling research that leads to improved predictability of temperature and rainfall distributions.
- ☐ Assess the impacts of climate variability on human activity and economic potential, and improve public education so that climate forecasts are understood and acted upon.

**Benefits.** We now can predict El Niño events to a level of skill and with enough lead time that hundreds of millions of dollars a year can be saved both in the U.S. economy and abroad. Climate services will be as important to 21st century economics and societies as weather forecasting is today. Better climate forecasting can result in benefits to U.S. agriculture, and ultimately U.S. consumers, of more than \$300 million annually from improved agricultural crop decisions.<sup>6</sup> For example, the ability to perfectly forecast ENSO events one year in advance would permit U.S. corn inventories to decline 8 percent, with annual savings of nearly \$240 million.<sup>7</sup> A cost-benefit analysis of one NOAA program to understand and model ENSO, the Tropical Ocean Global Atmosphere (TOGA) program, shows a real economic return on investment of at least 13–26 percent for U.S. agriculture alone.<sup>8</sup>



## Predict and Assess Decadal to Centennial Change

**Vision.** NOAA and its research partners will provide science-based information for decisions regarding decadal-to-centennial changes in the global environment, specifically for: climate change and greenhouse warming; ozone layer depletion; and air quality improvement.

**Challenge.** Our planet is a place of natural and human-induced change. Human activities are now recognized as impacting climate, thinning of the stratospheric ozone layer, and atmospheric pollution. While these changes increasingly promise to impact our societal systems and natural environments, they challenge the world community to improve its prediction and assessment capabilities. Explanatory environmental models must be strengthened through better understanding of the atmospheric and oceanic processes so that we may meet the challenges of understanding and foreseeing climate variability and long-term change in approaching decades. Sound economic and social decisions depend upon it.

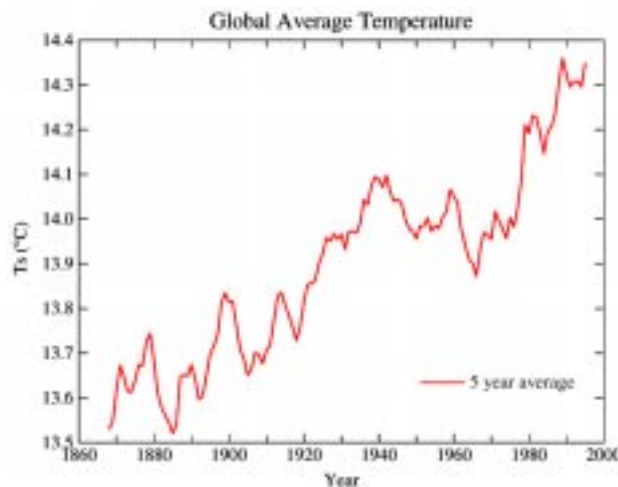
### Implementation Strategy.

The objectives are:

- ☐ Characterize the agents and processes that force decadal to centennial climate change.
- ☐ Understand the role of the ocean as a reservoir of both heat and carbon dioxide to address a major source of uncertainty in climate models.
- ☐ Ensure a long-term climate record by enhancing domestic and international weather networks, observing procedures, and information management systems. Document present and past changes and variations in the climate system, including extreme events, and rapid climate changes, exploiting national and international observing networks, satellites, and paleoclimatic data.

- ☐ Guide the rehabilitation of the ozone layer by providing the scientific basis for policy choices associated with ozone-depleting compounds and their replacements.
- ☐ Provide the scientific basis for better air quality by improving the understanding of high surface ozone episodes in rural areas and by strengthening the monitoring network to detect cleaner air quality and improving the characterization of airborne fine particles.
- ☐ Develop models for the prediction of long-term climate change (including extreme events and rapid climate changes), carry out scientific assessments, and provide human impacts information.

**Benefits.** Nations have committed to eliminating production of compounds that deplete the ozone layer (Montreal Protocol). Research is not only helping define the “ozone-friendly” replacement compounds, but also documenting that the recovery of the ozone layer is as expected. Anticipatory research on global climate change supports sustainable development by providing timely information to society to make sound decisions to mitigate against or adapt to changes that can be expected to occur. The U.S. Clean Air



Act Amendments of 1990 require pollutant emission reductions to improve the Nation's air quality. New research is pointing to more effective ways to meet those goals, thereby avoiding costly overregulation. Providing research results which address key scientific uncertainties, presenting the improvements in understanding in up-to-date assessments, and summarizing this knowledge in terms relevant to government and industrial leaders are the cornerstones of environmental stewardship.





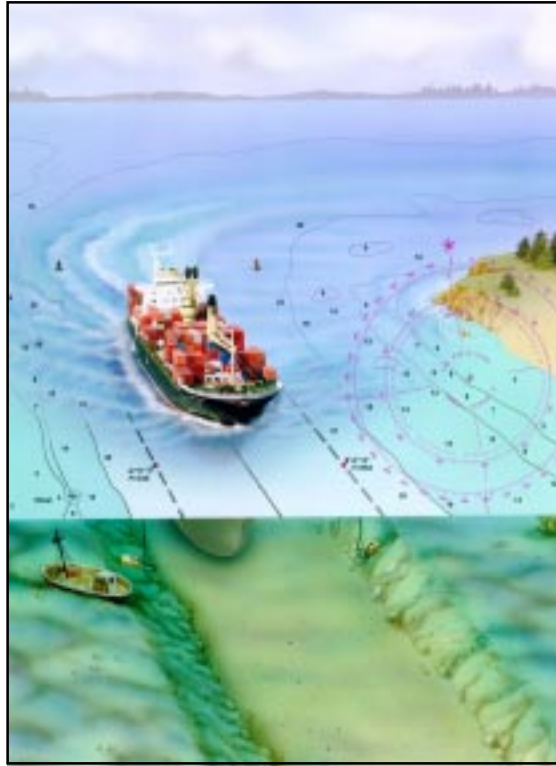
## Promote Safe Navigation

**Vision.** By 2005, merchant ships, fishing vessels and recreational boats will safely ply our coastal waters, electronically guided by space-based navigation and advanced information technologies. NOAA will revolutionize U.S. marine navigation, mapping and surveying and assist commercial shipping in moving increased cargoes safely and efficiently into and out of the Nation's ports and harbors. NOAA will provide a precise satellite derived reference system as the basis for the Nation's nautical data and geographical positioning needs.

**Challenge.** Ships have doubled in length, width and draft in the last fifty years and seagoing commerce has tripled, leading to increased risk in the nation's ports. Between 1993 and 1996, tankers alone were involved in 174 groundings, 14 collisions, and 12 deaths.<sup>9</sup> Navigation tools must be modernized. Up-to-date nautical charts are essential for the safety of life and property and safe and efficient navigation. Approximately 60% of NOAA's nautical charting data were obtained before 1940. Although considered to be the best available at that time, dramatic improvements in efficiency and accuracy have been realized in the technology used to collect data. Two-thirds of the data used for tidal predictions are more than 40 years old. The existing coordinate reference system must be renovated to provide the higher accuracy and accessibility available from the Global Positioning System (GPS).

**Implementation Strategy.** The objectives are:

- ☐ Build, maintain and deliver a digital nautical charting database to underpin new electronic navigation systems which integrate satellite



positioning, tidal heights and currents, radar and sonar, and navigational aids.

- ☐ Update nautical surveys of the Nation's coastal areas using full-bottom coverage technologies.

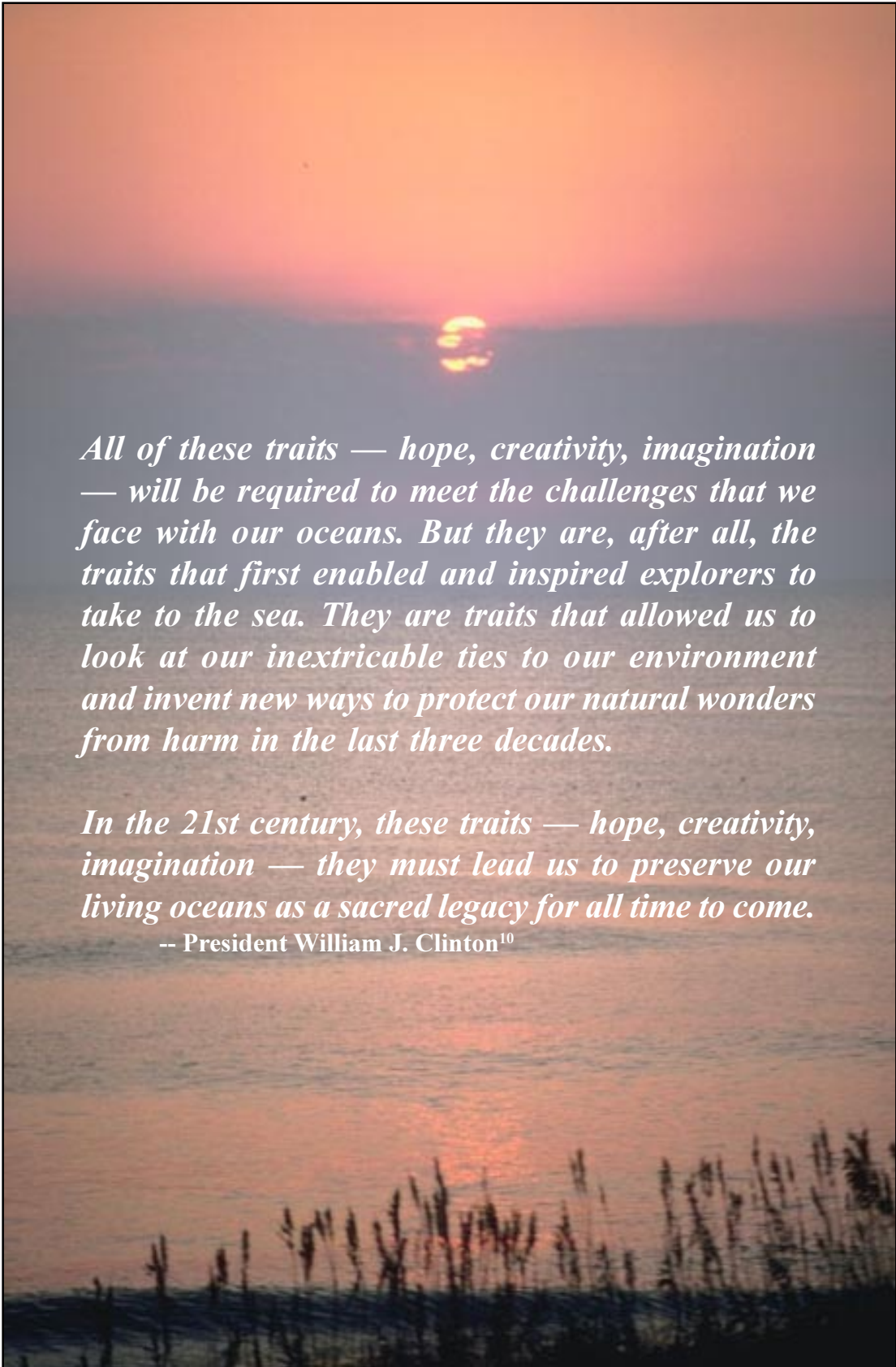
- ☐ Define the national shoreline in an accurate and consistent manner using state of the art technology to serve the Nation's navigational and coastal managers.

- ☐ Provide mariners with real-time observations and forecasts of water levels, tides and currents, and weather conditions in ports.

- ☐ Transform the obsolete geodetic reference frame into a GPS-based system of monumented marks and continuously-operating reference stations to support the digital revolution in mapping, charting and surveying.

**Benefits.** New technology including full-bottom nautical surveys, digital charting, satellite positioning (Global Positioning System), and real-time observations of tides and currents promise to reduce maritime transportation risks, enhance environmental protections, and heighten the competitiveness of the U.S. shipping industry. With today's deep-draft container ships, each additional inch of underkeel clearance translates into as much as tens of thousands of dollars in additional cargo trade in or out of the U.S. Newer technologies will result in more complete and accurate surveys of the ocean floor and will enable the mariner to know the ship's precise position relative to charted obstacles as well as its depth and underkeel clearance. These technologies also will support the needs of coastal zone planners, regulatory officials and researchers as they work to ensure the safe, sustainable and efficient development of our coastal and ocean resources.

# Environmental Stewardship Mission

A photograph of a sunset over a body of water. The sun is a bright orange orb on the horizon, casting a long, shimmering reflection down the center of the water. The sky is a gradient of orange and pink. In the foreground, the dark silhouettes of reeds or grasses are visible against the water.

*All of these traits — hope, creativity, imagination — will be required to meet the challenges that we face with our oceans. But they are, after all, the traits that first enabled and inspired explorers to take to the sea. They are traits that allowed us to look at our inextricable ties to our environment and invent new ways to protect our natural wonders from harm in the last three decades.*

*In the 21st century, these traits — hope, creativity, imagination — they must lead us to preserve our living oceans as a sacred legacy for all time to come.*

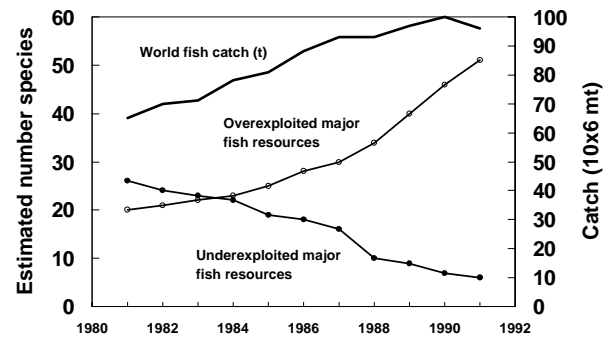
*-- President William J. Clinton<sup>10</sup>*



## Build Sustainable Fisheries

**Vision.** NOAA's vision for the next decade is to increase greatly the Nation's wealth and quality of life through sustainable fisheries that support fishing communities, safe and wholesome seafood and recreational opportunities.

**Challenge.** Billions of dollars in economic growth, thousands of jobs and countless recreational fishing opportunities are being wasted as a result of overfishing and overcapitalization in commercial and recreational fisheries. While many fisheries are well managed and producing positive benefits, others are severely depleted or overcapitalized, and must be restored and managed to realize their long-term potential. For example, the historically important New England groundfish fishery was severely curtailed in 1994 due to the collapse of stocks. Transboundary resources can be especially vulnerable as they require international cooperation to achieve effective conservation and management. U.S. fisheries are troubled by bycatch, including juvenile and protected marine species, controversial allocation decisions among elements of fishing industries, and degradation and loss of essential fish habitat. Uncertainty in scientific information makes management decisions difficult. There is also an increasing domestic and global demand for seafood. In order to meet this growing demand, and in light of the growing number of wild stocks that are overfished or fully utilized, it is important for the U.S. to develop in an environmentally sound manner, an increase in the culture of marine species.



**Implementation Strategy.** The objectives are:

- ☐ Eliminate and prevent overfishing and overcapitalization.
- ☐ Attain economic sustainability in fishing communities.
- ☐ Develop environmentally and economically sound marine aquaculture.

**Benefits.** Rebuilding and reducing the overcapitalization in existing fisheries will promote the economic and biological sustainability of U.S. fishing resources, assist the commercial fishing industry in becoming more competitive internationally, and maintain the viability of fishing communities. Along with economic gains and the rebuilding of living marine resources, improved fisheries management and conservation will enhance recreational opportunities and save lives by eliminating the dangerous and wasteful race for the fish.

By developing environmentally sound aquaculture, the increasing demand for seafood can be met with high-quality and reliable products without further overfishing and overcapitalization of wild populations.





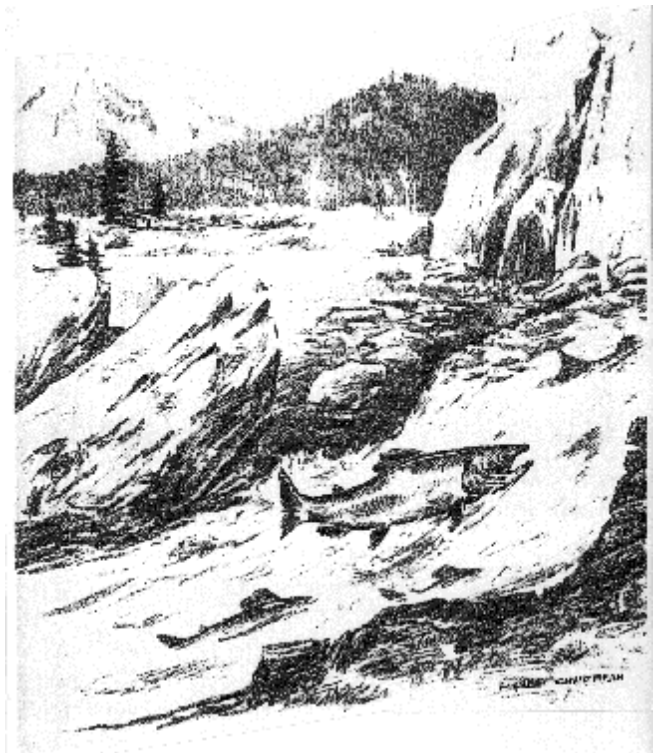
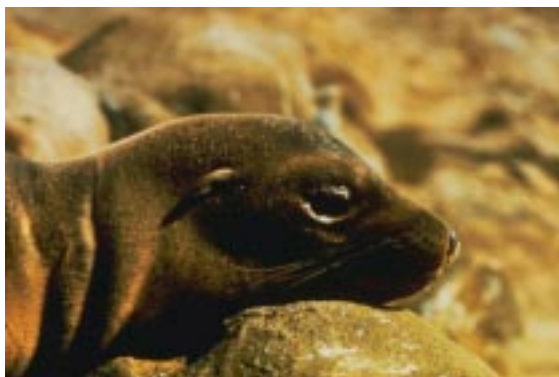
## Recover Protected Species

**Vision.** NOAA's vision is to conserve marine species and to recover those in danger of extinction. By 2005, NOAA will be on the road to recovering every marine species at risk and maintaining healthy marine ecosystems upon which they depend.

**Challenge.** Marine resources contribute billions of dollars to the Nation's economy. However, many commercial and recreational activities contribute to stress on marine species. Many populations of marine organisms are depleted or declining due to human activity in marine ecosystems or to unknown causes. For example, west coast salmon populations have dramatically declined to near extinct levels due to a combination of factors including habitat loss and commercial overexploitation. Despite protective measures, fishing related mortality continues to threaten marine turtles in U.S. waters. Several sea lion and seal populations in Alaska are declining rapidly, and the causes are uncertain. Recovery plans have been developed for the most endangered species; but implementation plans for others, especially for stocks of marine mammals and sea turtles, are needed. The desired outcome is to recover protected species in danger of extinction in a manner compatible with the sustainable use of marine resources.

**Implementation Strategy.** The objectives are:

- ☐ Reduce the probability of extinction for protected species. This will be accomplished through cooperative partnerships, development and implementation of conservation and recovery programs, and research and management actions to mitigate or avoid detrimental interactions between marine species and human activities.



- ☐ Maintain healthy species and ecosystems. Through an ecosystem approach to marine biodiversity conservation and species recovery, NOAA will assess and predict the status of protected species and identify barriers to their recovery. This supports mandates in the Endangered Species Act, Marine Mammal Protection Act, and international treaties and conventions. Actions taken to conserve healthy or at risk resources will avoid the need for listing as protected species.

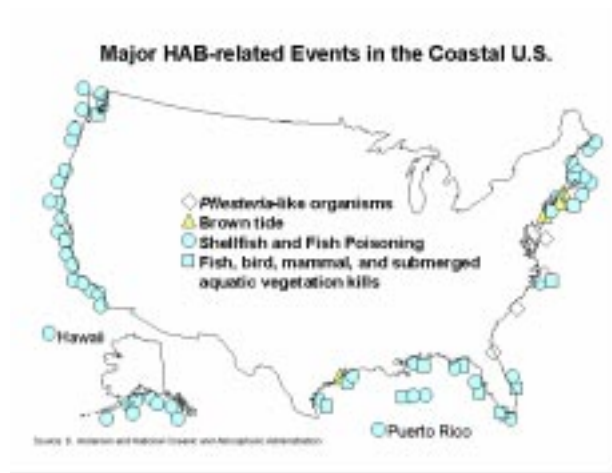
**Benefits.** Through conservation of the Nation's living marine resources, NOAA will enhance economic and cultural opportunities for future generations. The existence of the Marine Mammal Protection Act, the Endangered Species Act and other legislation provides a clear indication of public support for strong efforts to conserve living marine resources. This effort will enable the preservation of marine biodiversity by balancing the utilization of natural resources with the management of protected species. Recovering species, and avoiding the further decline of others, will contribute to the overall health and understanding of marine ecosystems. Improved science will lead to better long-term conservation and management strategies.





## Sustain Healthy Coasts

**Vision.** By 2005, the Nation's coasts will have more productive and diverse habitats for fish and wildlife and cleaner coastal waters for recreation and the production of seafood. Coastal communities will have thriving, sustainable economies based on well-planned development and healthy coastal ecosystems.



**Challenge.** Our economy is increasingly dependent on coastal resources. One in every six U.S. jobs is marine-related and one-third of the nation's gross domestic product is produced in coastal areas through fishing, transportation, recreation and other industries. For example, U.S. coastal tourism and recreation industries are the largest and fastest growing economic segments of the U.S. service industry with coastal travel and tourism contributing over \$58 billion a year, \$7.5 billion of which is generated by foreign visitors. Eighty-five percent of all U.S. tourism revenues come from coastal states. Seventy-five percent of all marine commercial fisheries species depend on coastal estuaries as nurseries and feeding grounds. These industries depend on healthy coastal environments to survive. The rapid growth of coastal populations and increasing demands for access to coastal areas have destroyed many coastal habitats, polluted coastal waters, and produced significant changes in the biology and chemistry of coastal areas. Over 50% of the U.S. population now lives on a coast, and 3,600 people are added to coastal communities every day.<sup>11</sup> Habitat loss, harmful algal blooms, polluted beaches, contaminated shellfish beds, and hypoxic "dead zones" are signs that human impacts can degrade coastal ecosystems and threaten the communities and economies

that depend on them. The rapid growth of U.S. coastal population also leaves people and property increasingly vulnerable to natural disasters and coastal hazards including hurricanes, floods, and tsunamis. Maintaining the health and biodiversity of coastal ecosystems requires information, solutions and planning for people to live, work and play in ways that sustain, and not destroy, the coastal resources that make these areas so productive.

**Implementation Strategy.** The objectives are:

- ☐ Protect, conserve and restore coastal habitats and their biodiversity.
- ☐ Promote clean coastal waters to sustain living marine resources and ensure safe recreation, healthy seafood and economic vitality.
- ☐ Foster well-planned and revitalized coastal communities that sustain coastal economies, are compatible with the natural environment, minimize the risks from nature's hazards, and provide access to coastal resources for the public's use and enjoyment.

**Benefits.** Improved understanding of coastal systems and human impacts will produce better predictions of future conditions. Better predictions will produce better decisions that ensure that our nation's coasts are managed wisely for current and future generations. Monitoring, research, modeling and assessments provide NOAA and our partners with the scientific basis for management actions that reduce costly damages and prevent further degradation of coastal resources. Improving our ability to plan and mitigate for natural hazards will reduce both the economic and environmental costs associated with these events. Providing stakeholders with access to this information will enhance appreciation for the role coastal resources play in our daily lives, and increase understanding of the role each of us can play in sustaining our precious coastal areas. Through these and other activities, NOAA assists federal, state, and local resource managers in protecting, managing, and restoring our vital coastal assets. NOAA works to provide the science and solutions to reduce costs and sustainably balance economic and environmental needs of the nation's coastal areas.

# National Capabilities and Supporting Infrastructure

**The successful execution of NOAA's missions and goals depends on our capabilities as a national resource for research, observing systems, and environmental data and information services; and on our supporting infrastructure. NOAA must continue to invest in these capabilities, which serve as the foundation of our programs.**

*NOAA's assets include:*

## ■ Research

Research is the foundation upon which NOAA will meet its environmental stewardship and environmental assessment and prediction visions by the year 2005. A strong research capability ensures continuity and improvements of services, provides the knowledge and technical base to integrate science in support of resource management, and enables NOAA to meet emerging national needs.

NOAA maintains its world renowned and respected scientific capabilities through complementary intramural and extramural research programs. NOAA's partnerships with government agencies, academia, private sector, and the international science community allows the Agency to consistently optimize its return on its research investments. Through a rigorous peer review process, NOAA and NOAA-sponsored research remains at the forefront of scientific inquiry and the development of new environmental technologies. NOAA research pioneered the development of technologies for modernized weather service operations in the 1990s; it has enabled the U.S. to launch a new era of climate forecasting; and it has delivered the improved understandings of coastal, ocean, and atmospheric systems for improved resource management.



NOAA's research capabilities include the people and facilities of the Environmental Research Laboratories, Fisheries Science Centers, Cooperative and Joint Academic Institutes, the Office of Global Programs, the Coastal Ocean Science Program, the National Sea Grant College Program, the National Undersea Research Program and other research components throughout the Agency. In all areas, Earth and space weather, climate, fisheries, habitat, marine and coastal processes, and air quality,

NOAA research contributes directly to America's and the world's prosperity.

## ■ Observing Systems

The most fundamental NOAA activity is the description of the physical, chemical, and biological properties of the Earth and its environments. A sound observational and monitoring capability is vital to the success of NOAA and the Nation. NOAA's vision for the 21st century is of a modern, integrated and comprehensive system of observing platforms and networks to provide the quality data and information needed to support NOAA and national goals.

NOAA observes environmental conditions in locations ranging from outer space to the ocean bottom, and places a high priority on the continuity of observations. Observations are made from instrumented platforms such as satellites, aircraft, ships, buoys, and submersibles. Observing networks include radars, radiosonde stations, tide gauges, water level stations, volunteer weather observers, and numerous other systems monitoring a broad spectrum of oceanic and atmospheric variables. NOAA is constantly designing, developing, testing and deploying new observing systems to improve its ability to monitor the environment.

NOAA leverages its observing capabilities by cooperating with federal and state agencies, academic institutions, foreign governments, and international organizations. This cooperation includes data exchange agreements, technology sharing, integrated planning, and merged assets.

## ■ Environmental Data and Information Services

Services involving the acquisition, archiving, integration, and dissemination of environmental data and information are critical to the fulfillment of NOAA's strategic goals. NOAA maintains the largest environmental data archives in the world. New observational systems now becoming operational will result

in an exponential increase in the rate at which data are acquired. Sophisticated handling will be required to ensure timely and useful data products. NOAA must transmit observations to many locations for analysis and integration, process the observations into useful information products, and disseminate these products to users.

There is hardly a sector of the U.S. economy that does not rely to some extent on NOAA data and information services. Electronic dissemination of NOAA data and information has increased dramatically in recent years, and is expected to continue to increase with the growing public demand for on-line access to government information. NOAA is implementing network architecture that will provide the agency and the public with high-quality network management, reliability, security, and service. In the future, NOAA's Virtual Data System will provide seamless access to all NOAA data. NOAA's system of environmental information services is an essential link in the chain leading to informed policy decisions.



Photo: Linda Straton, PMEL

## ■ Supporting Infrastructure

NOAA's supporting infrastructure consists of its facilities, administrative services, and public and educational services. All of these resources are essential to furthering the agency's strategic goals.

NOAA's greatest assets are its people. NOAA is committed to being the model employer of a talented, dedicated and effective workforce that reflects the Nation's diversity. This includes the creation of a supportive work environment that encourages a respect for, and appreciation of, individual differences.

As all Government agencies streamline operations, workforce skill mix becomes increasingly crucial. By 1999, NOAA will have reduced its workforce by 13.6% from the 1993 level. To ensure quality and performance, while improving efficiency, NOAA must continue to invest in the training and education of its employees, make strategic hires, and implement innovative management practices.

Finally, NOAA must build and maintain facilities that are safe, energy efficient and in compliance with applicable laws and regulations. Facilities and sites requiring environmental remediation must be restored.





# The Strategic Planning and Budgeting Process

NOAA conducts its strategic planning and budgeting activities according to an annual cycle. The cycle ensures the alignment of NOAA's strategic and programmatic objectives. It directs activities that allow the agency to plan, budget, and continuously verify and validate performance. This cycle allows NOAA to play a key role in the Department of Commerce strategic planning efforts.

Planning involves Teams comprised of representatives from all parts of the agency. The Teams are active throughout the strategic planning and budgeting cycle. From the Strategic Plan, the Teams create a 5-Year Implementation Plan. The Implementation Plan is updated yearly to maintain a realistic, yet challenging transitional course toward our vision for 2005. Programmatic priorities, level of accomplishments, and performance throughout the year are taken into consideration in developing policy guidelines, and in establishing key milestones and performance measures. NOAA's leadership, Assistant Administrators, and Program and Staff Office Directors utilize the milestones and performance measures to track progress toward meeting strategic goals and to formulate and update annual budget requests, one-year Operating Plans, and performance plans.

NOAA updates its Strategic Plan as required. Goals and objectives are reaffirmed or modified based on changing national needs, scientific and technological advances, and customer input. NOAA seeks extensive internal and external participation in reviewing and updating the Strategic Plan. Annual workshops are held to update our constituents and to solicit their input on the agency's future direction. This helps ensure that our goals, objectives and performance reflect the needs and expectations of the customers we serve.

*In the long run, we have to build agencies — and a congressional committee structure — that work more on horizontal than vertical lines. Partnerships and fluid organizations are the key because networks — not hierarchies — define government in the 21st Century. This will be a difficult step. This means working across agency boundaries — blurring them into virtual organizations where the customer doesn't have to care which agency is delivering the service. This means agencies have to define common goals — as we are doing in ecosystem management.*

*Vice President Al Gore<sup>12</sup>*

## Appendix I. NOAA Line/Program Offices and Assistant Administrators/Program Directors

<u>Line/Program Office</u>		<u>Assistant Administrator</u>
NESDIS	National Environmental Satellite, Data and Information Service	Robert S. Winokur
NMFS	National Marine Fisheries Service	Rolland A. Schmitten
NOS	National Ocean Service	Nancy Foster
NWS	National Weather Service	John J. Kelly
OAR	Oceanic and Atmospheric Research	David Evans

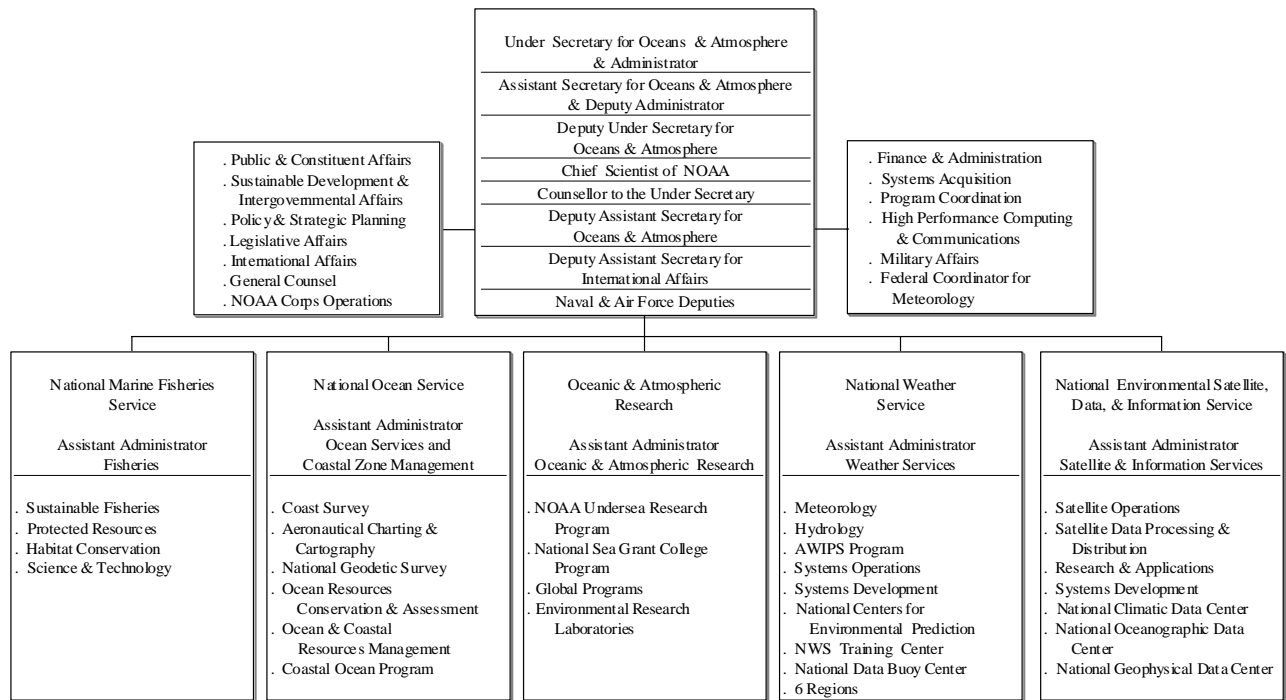
## Appendix II. Primary Line/Program Office participation mapped to strategic goals, and designated team leads.

<u>Goal</u>	<u>Line/Program Office</u>
Advance Short-Term Warning and Forecast Services <i>Team Lead: Louis Uccellini, NWS</i>	NWS, NESDIS, OAR, NOS
Implement Seasonal to Interannual Climate Forecasts <i>Team Lead: Ants Leetmaa, NWS</i>	NWS, OAR, NESDIS, NOS
Predict and Assess Decadal to Centennial Change <i>Team Leads: Dan Albritton, OAR, Tom Karl, NESDIS</i>	OAR, NESDIS, NOS, NWS
Promote Safe Navigation <i>Team Lead: Nick Prahl, NOS</i>	NOS, OAR, NESDIS
Build Sustainable Fisheries <i>Team Lead: Gary Matlock, NMFS</i>	NMFS, NOS, OAR, NESDIS
Recover Protected Species <i>Team Lead: Phil Williams, NMFS</i>	NMFS, OAR, NESDIS
Sustain Healthy Coasts <i>Team Lead: Margaret Davidson, NOS</i>	NOS, NMFS, OAR, NESDIS

### Appendix III. Citations

1. Secretary Daley's Remarks at the Greenhouse Gas Emissions Trading Policy Forum, June 20, 1997. U.S. DoC.
2. Habitat Protection Activity Report 1991–1993, August 1994. U.S.DoC, NOAA, NMFS, Office of Habitat Protection, p. 9.
3. Testing the Waters – 1998: Has your Vacation Beach Cleaned Up Its Act? Natur. Res. Def. Council, 1998.
4. Secretary Daley's Remarks at the Press Conference on the Spring Flood Outlook/Natural Disaster Reduction Initiative, Alexandria, Virginia. March 3, 1998. U.S. DoC.
5. Benefits/Cost Study for the Modernization and Associated Restructuring of the National Weather Service, 1991. U.S.DoC, National Institute of Standards and Technology.
6. The Value of Improved ENSO Prediction to U.S. Agriculture. 1998. Solow, A.R., Adams, R.R., Bryant, K.J., Legler, D.M., O'Brien, J.J., McCarl, B.A., Nayda, W., and R. Weiher. *Climate Change* 39:47–60.
7. The Value of El Niño Forecasts in Agricultural Commodity Markets: The Case of U.S. Corn. McNew, K. Report to NOAA, U.S. DoC. January, 1998.
8. Cost Benefit Analysis of the TOGA and the ENSO Observing System, in: *Operational Oceanography. The Challenge for European Cooperation*. Sassone, P.G. with R. F. Weither. Elsevier Science. 1997.
9. No Safe Harbor; Tanker Safety in America's Ports, 1990. National Resources Defense Council.
10. President Clinton's Remarks at the National Ocean Conference, Monterey, CA, June 12, 1998.
11. 50 years of Population Change Along the Nation's Coasts, 1960–2010. 1990. Coastal Trends Series, Report 2. U.S. DoC, NOAA, National Ocean Service.
12. Vice President Albert Gore's Remarks at the Government Performance and Results Act Conference. April 23, 1998.

# U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION





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